Decision Memo

Black Ranch Floodplain Enhancement Project

U.S. Forest Service
Lassen National Forest
Hat Creek Ranger District
Shasta County, California

BACKGROUND

The Hat Creek Ranger District is proposing the Black Ranch Flood Plain Enhancement Project (hereafter Black Ranch Project or Project) near Burney Creek, approximately 4 miles northwest of the community of Johnson Park, California, Township 36 North, Range 3 East, sections 17 and 19. The project lies within the Burney – Hat Creek Basins Collaborative Forest Landscape Restoration Project area.

In 2012-2014, the Natural Resource Conservation Service (NRCS), in conjunction with private land owners, conducted a stream enhancement project on private lands to restore much of the natural hydrology on their part of the floodplain. With the improved upstream hydrology, seasonal flooding on adjacent National Forest System (NFS) lands within the historic flood plain is now occurring, affecting a plantation that was established on the wetland in 1952-53. The new and persistent water is leading to several issues including rampant tree mortality in the low-lying area and inundation of a portion of NFS Road 36N15 causing sedimentation in the floodplain.

Additionally, significant mortality from western pine beetle and IPS bark beetle is occurring within the project area. Beetle mortality has caused an overabundance of large, course woody debris and forest fuels in some areas.

To address these issues, the Hat Creek Ranger District is proposing to improve drainage and structural integrity of an existing berm and impoundment, relocate a portion of NFS Road 36N15 to higher ground, decommission non-system routes that are leading to sedimentation, sanitation/salvage trees from low-lying areas, thin over dense trees on higher ground, pile burn, and jackpot burn areas with high forest fuel concentrations.

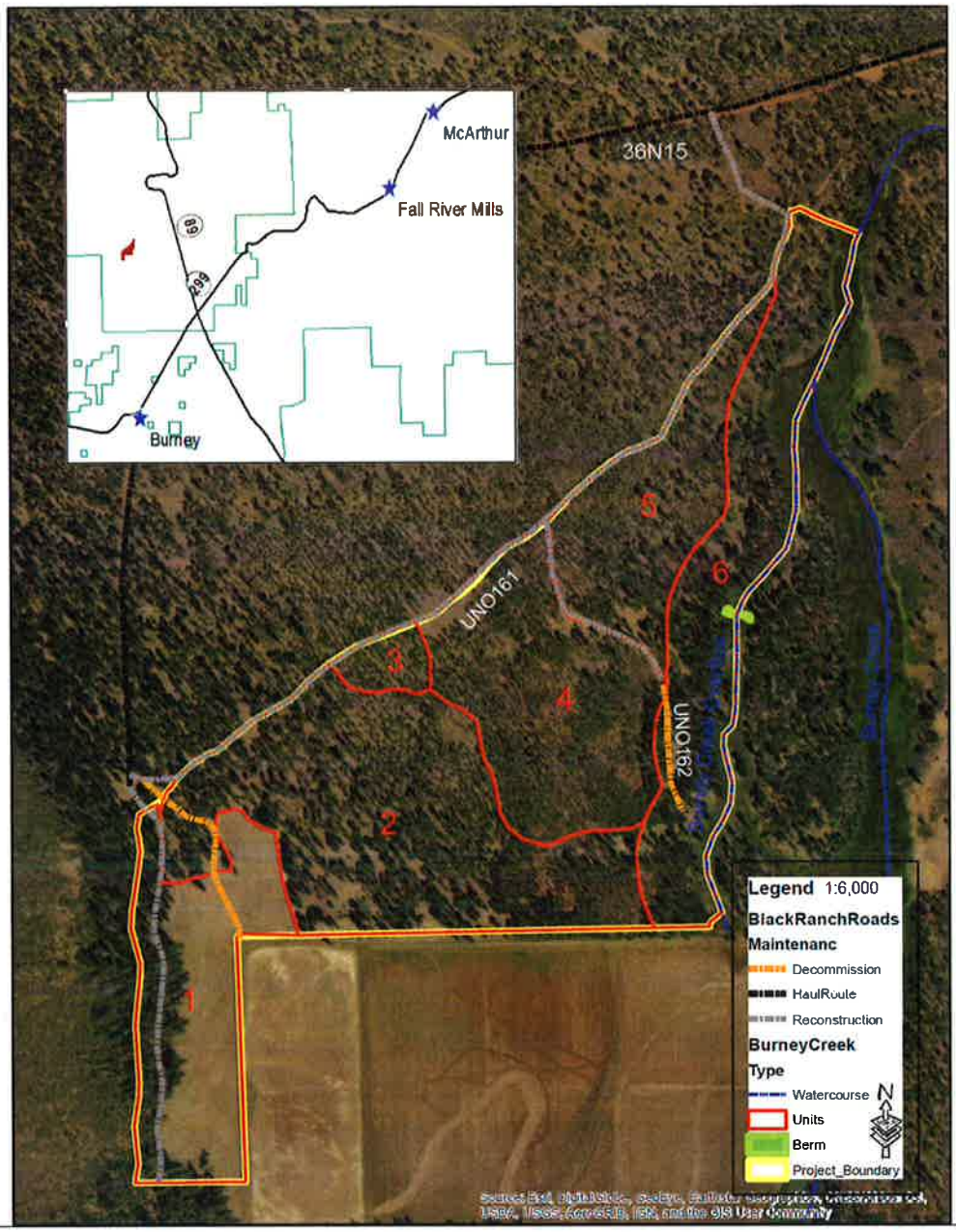

Figure 1. Map of the Black Ranch Flood Plain Project Area

MANAGEMENT DIRECTION

This project is consistent with the goals, objectives, and management direction of the 1992 Lassen National Forest Land and Resource Management Plan (LRMP) and 1993 Record of Decision (ROD) as amended by the 1994 Northwest Forest Plan (NWFP) and 1994 ROD, and the Sierra Nevada Forests Management Indicator Species (SNF MIS) Amendment FEIS and ROD (2007).

The Project encompasses approximately 108 acres of National Forest System (NFS) land which fall within the scope of the Northwest Forest Plan (USDA 1994). The Land allocation types are provided below.

Table 1. Northwest Forest Plan (NWFP) Land Allocation Categories in Crossroads

Stand Type	Acres	Percentage
Matrix	86	79%
Riparian Reserve	22	21%
Total	108	100%

PURPOSE AND NEED

The purpose of the Black Ranch Project is to continue the enhancement effort on the NFS portion of the historic flood plain and address the issues caused by current and foreseeable periods of inundation and tree mortality. The project is intended to:

1. Improve the hydrologic function of the flood plain by improving the drainage and structural integrity of an existing berm and impoundment.
2. Reduce sedimentation into the wetland by decommissioning non-system roads in low-lying areas.
3. Protect NFS infrastructure by relocating a section NFS 36N15 to higher ground to prevent flooding.
4. Address tree mortality in the plantation by removing low-lying trees and thinning higher areas of the plantation to reduce the spread of bark beetles.
5. Address the overabundance of forest fuels by piling burning and jackpot burning excess course woody debris.

Existing Condition and Desired Condition

The Black Ranch Project encompasses approximately 108 acres of National Forest Land. The project area falls within the scope of the 1994 Northwest Forest Plan and is divided into two land allocations: Matrix (86 acres) and Riparian Reserves (22 acres).

To meet the objectives listed in the Purpose and Need, the Project has been broken into six smaller areas for site specific evaluation of existing and desired conditions.

Area #1 (17 acres)

Existing Condition

This area is primarily an open grassland with timbered edge above the flat with ponderosa pine and Douglas-fir. It has 100-140 trees per acre averaging 18 inches diameter at breast height. National Forest System Road 36N15 crosses the grassland close to the tree line. Seasonal flooding in the low-lying area is washing away the road prism leading to sedimentation of the flood plain.

Desired Condition

The desired condition for this area is a healthy functioning wetland and an efficient and maintained transportation system that provides public access and meets current and anticipated management objectives.

Area #2 (33 acres)

Existing Condition

This is a moderately stocked stand with 80-120 trees per acre of Ponderosa pine, incense cedar, and white fir. Due to the temporal flooding, 10-35 percent of the overstory is experiencing mortality while 90-100 percent of the understory is dead.

Desired Condition

The desired condition for this area is to address the rampant mortality caused by frequent inundation, capture the remaining economic value in this portion of the 1950s plantation, and restore the landscape back to a healthy wetland with improved hydrologic and habitat function.

Area #3 (2 acres)

Existing Condition

This small area is primarily Ponderosa pine with scattered white fir and incense cedar. Advanced regeneration of white fir is causing an increase in the amount of ladder fuels into the upper canopies which can lead to crown fire and spotting.

Desired Condition

The desired condition for this area is to restore and maintain a healthy, fire resilient forest, providing for public and firefighter safety. Ladder and surface fuel loading would be reduced to an average of three tons/acre under 90 percent weather conditions, reducing flame lengths to an average of four feet and allowing for safe suppression by fire engines and hand crews.

Area #4 (20 acres)

Existing Condition

This area is a plantation consisting primarily of Ponderosa pine. It currently has over 75 percent mortality due to high stand densities and western pine beetles.

Desired Condition

The desired condition for this area is a healthy forest with decreased mortality due to high stand density and an increased level of species, size, and spacial diversity that is resilient to future outbreaks of insects and disease.

Area #5 (14 acres)

Existing Condition

Forest stands consist primarily of Ponderosa pine with scattered white fir and incense cedar. Stands are low to moderately-stocked due to insect and disease activity. Stands with the highest beetle damage are generally growing in over-dense areas dominated by a single host species. Mortality is resulting in an abundance of course woody debris and forest fuels.

Desired Condition

The desired condition for this area a healthy diverse forest, that is less densely stocked and more resilient to fire and future outbreaks of insect and disease. Ladder and surface fuel loading, reduced to an average of three tons/acre under 90 percent weather conditions, would allow for safe suppression by fire engines and hand crews by reducing flame lengths to an average of four feet should an ignition occur.

Area #6 (22 acres)

Existing Condition

The forested area has both natural stands and plantation consisting of Ponderosa pine, with lesser amounts of incense cedar and white fir, and a scattering of Douglas fir. The majority of the stands and larger size classes have not been treated in the past. There is currently a berm with a small overflow channel that is clogged with debris and small diameter trees.

Desired Condition

The desired condition for this area is a structurally sound berm with a functional overflow channel. Forest stands would be diverse in both species and size class, averaging approximately 120 square feet ($ft^{2)}$ of basal area.

Transportation

Existing Condition

The project area has existing National Forest System and non-system (temporary) roads. A portion of NFS 36N15 in Area #1, non-system road UNO211, and the southern portion of UNO162 cross the wetland area and are being seasonally inundated resulting in surface erosion and other adverse ecological impacts.

Desired Condition

The desired condition for transportation is an efficient and maintained transportation system that provides safe public access and meets current and anticipated management objectives without adverse resource impacts.

DECISION

I have decided to implement the proposed actions on the acres in the 108 acre Black Ranch Project as mitigated by the Integrated Design Features shown in Appendix A.

Proposed Actions

To address the issues listed in the Purpose and Need and to continue the enhancement effort on the NFS portion of the floodplain, the Hat Creek Ranger District will improve the drainage and structural integrity of an existing berm and drainage channel on an intermittent channel of Burney Creek; relocate approximately 0.31 miles of NFS road 36N15 to bring it above flood level; decommission approximately 0.36 miles of non-system road to reduce sedimentation and other adverse effects to the wetland; salvage harvest the low-lying timber on approximately 53 acres; thin dead, dying, and overly dense trees from approximately 36 acres of higher ground; grapple pile, pile burn, and jackpot burn the heaviest concentrations of surface fuels.

Area #1 (17 acres)

Approximately 0.31 miles of National Forest System Road 36N15 will be relocated to higher ground to protect the road prism and reduce sedimentation during high water periods. Timber will be removed to allow for new road construction.

Area #2 (33 acres)

Trees in this low-lying area will be sanitation/salvage harvested to arrest mortality due to persistent flooding. All conifers greater than 24 inches diameter at breast height (dbh) will be retained for future snags and course woody debris. Fuels and activity generated material will be grapple piled and the piles burned. Following treatment, this area will be managed as a wetland.

Area #3 (2 acres)
On approximately two acres, conifers less than five inches dbh will be removed by hand to decrease the fuels leading into the canopy. Fuels and activity generated material will be grapple piled or hand-piled and the piles burned.

Area #4 (20 acres)
Plantation stands in this area will be sanitation/salvage harvested to remove live and dead trees on approximately 21 acres. Three to five trees per acre of the largest Ponderosa pine will be retained. Fuels and activity generated material will be grapple piled and the piles burned. The site will be prepped and replanted with a mix of Ponderosa pine, sugar pine, and incense cedar for species diversity and resilience to future outbreaks of insects and disease.

Area #5 (14 acres)
The stands in this area will be commercially thinned to a basal area range of from 80 to 100 ft^2/acre to reduce the risk of further bark beetle infestations. The thinning will occur across all age (diameter) classes, except that no trees greater than 30 inches DBH will be removed. Removals will focus on unhealthy and beetle infested ponderosa pine, while healthy white fir, incense cedar, and Douglas fir are retained for species diversity. Fuels and activity generated material will be grapple piled or hand-piled and the piles burned. Following piling, the area will be jackpot burned. (Jackpot burning is prescribed burning of scattered concentrations of surface fuels. Burning does not cover the majority of the unit, generally resulting in less than 50 percent duff reduction.)

Area #6 (22 acres)
Trees along and adjacent to the existing berm and impoundment will be hand treated to improve drainage and structural integrity.

The forest stands in this area will be commercially thinned to an average basal area of 120 ft^2/acre. The thinning would occur across all age (diameter) classes, except that no trees greater than 30 inches DBH will be removed. Healthy white fir, incense cedar, and Douglas fir of any size will be favored for retention in order to improve species diversity. Overall, the treatment will retain more than 50 percent of the existing canopy.

Transportation
This project proposes to utilize existing temporary roads on higher ground throughout the project area. Approximately 0.31 miles of 36N15 will be relocated above flood stage and approximately 0.36 miles of non-system road in the low-lying area will be decommissioned to reduce sedimentation and other adverse ecological effects to the wetland.

Table 2. Table of Proposed Road Actions

Route	Length (mi)	Proposed Action
36N15	0.31	Relocation/Reconstruction
UNO162	0.11	Decommission
UNO211	0.25	Decommission

RATIONALE FOR CATEGORICALLY EXCLUDING THE PROPOSED ACTION

Analysis suggests that this proposal fits under categories of actions which are excluded from documentation in an environmental assessment (EA) or environmental impact statement (EIS):

36 CFR 220.6(e)(5) – generation of an area to native tree species, including site preparation that does not involve the use of herbicides or result in vegetation site conversion.

36 CFR 220.6(e)(6) – Timber stand and/or wildlife habitat improvement activities that do not include the use of herbicides or do not require more than 1 mile of low standard road construction.

36 CFR 220.6(e)(14) – Commercial and non-commercial sanitation harvest of trees to control insects or disease not to exceed 250 acres, requiring no more than ½ mile of temporary road construction, including removal of infested/infected trees and adjacent live uninfested/uninfected trees as determined necessary to control the spread of insects or disease. The proposed action may include incidental removal of live or dead trees for landings, skid trails, and road clearing.

36 CFR 220.6(e)(20) – Activities that restore, rehabilitate, or stabilize lands occupied by roads and trails, excluding National Forest System roads and National Forest System trails to a more natural condition that may include removing, replacing, or modifying drainage structures and ditches, reestablishing vegetation, reshaping natural contours and slopes, reestablishing drainage-ways, or other activities that would restore site productivity and reduce environmental impacts.

Extraordinary Circumstances and Resource Conditions

I find that there are no extraordinary circumstances that warrant further analysis and documentation. I took into account resource conditions identified in agency procedures that should be considered in determining whether extraordinary circumstances might exist:

Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species:

Aquatic Species –

The project area is either located outside the geographic range of all TES aquatic species, and/or lacks suitable habitat. No aquatic Management Indicator Species (MIS) occur within the project area. The project will not remove aquatic species MIS habitat, and will increase the wetland area.

Botanical Species –

The Proposed Action would have no effect on *Orcuttia tenuis* or its designated critical habitat because there are no known occurrences of this species within the project boundary and the primary constituent elements for the designated critical habitat are not contained within the Black Ranch Project area.

With implementation of project Integrated Design Features, the Black Ranch Flood Plain Enhancement Project will have no effect on any Forest Service Sensitive plant species, because there are no known occurrences for any of these species within the project area.

Wildlife –

No Effect:

Due to the Project Area being outside the range of the species, or due to the lack of suitable habitat or habitat components in the Project Area, it is my determination that the Proposed Action will have no effect on the following Federally Listed or Proposed threatened or endangered species or their critical habitat: North American wolverine, Pacific fisher, northern spotted owl, and gray wolf.

Due to the Project Area being outside the range of the species, or due to the lack of suitable habitat or habitat components in the Project Area, it is my determination that the Proposed Action will have no effect on the following Forest Service Sensitive species: Yellow rail, willow flycatcher, great gray owl, Townsend's big-eared bat, and Pacific marten.

Negligible Effects:

As discussed in the Effects Analysis (See BEBA) for each of the Forest Service Sensitive species listed below, the Proposed Action will have negligible effects on these species and their habitats. Therefore, it is my determination that the Proposed Action may affect individuals of these species or some habitat for these species, but is not likely to result in a trend towards federal listing or loss of

species viability: Northern goshawk, bald eagle, Sandhill crane, pallid bat, and fringed myotis.

Flood plains, wetlands, or municipal watersheds:

The actions proposed under the Black Ranch Project would not only safeguard, but enhance the beneficial uses in the project area. The potential for adverse cumulative watershed effects associated with the Proposed Action is negligible.

Congressionally designated areas such as wilderness, wilderness study areas, or national recreation areas:

There are none present.

Inventoried Roadless areas or potential wilderness areas:

There are none present.

Research natural areas:

There are none present.

American Indians and Alaska Native religious or cultural sites:

There are none present.

Archaeological sites, or historic properties or areas:

Effects for the proposed will be mitigated and reduced to a No Adverse Effect through the use of Integrated Design Features that are Approved Standard Protection Measures pursuant to the Regional PA. The District Archaeologist, fuels, vegetation management, or fire specialists as necessary, shall develop treatment measures for cultural resources designed to eliminate or reduce potential adverse effects to the extent practicable by utilizing methods that minimize surface disturbance, and/or by planning project activities in previously disturbed areas or areas lacking cultural features. Sites that are determined to need protection may receive any of the following appropriate protection measures based on the sensitivity, location, and nature of the site.

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

The National Forest Management Act (NFMA) requires projects to be consistent with the Forest Plan. The Black Ranch Project was designed in conformance with the goals, objectives, and management direction of the 1992 Lassen National Forest Land and Resource Management Plan (LRMP) and 1993 Record of Decision (ROD) as amended by the Northwest Forest Plan (NWFP) and 1994 ROD and the Sierra Nevada Forests

Management Indicator Species (SNF MIS) Amendment FEIS and ROD (2007).

This project meets the requirements of the National Historic Preservation Act of 1966, as amended, and implementing procedures outlined in the Region 5 Programmatic Agreement.

This project is in compliance with requirements of the Endangered Species Act of 1973, as amended. Threatened and Endangered Species have been reviewed and discussed in their respective Biological Assessments and noted in the "Extraordinary Circumstances and Resource Concerns" section.

This project will be conducted under the guidance of State and Regional Water Quality and Control Board to meet the requirements of the Federal Clean Water Act.

Applicable rules and guidelines for prescribed burning will be followed to ensure conformance with the Clean Air Act.

Public Involvement

The Black Ranch Project was initiated on February 21, 2019. It was first listed as a proposal on the Lassen National Forest Schedule of Proposed Actions April 1, 2019. The Proposed Actions, Purpose, and Need were posted to the Lassen National Forest website on August 23, 2019. The Pit River Tribe was contacted, and letters were mailed out to interested parties on August 26, 2019. Public notices were published in the Intermountain News and the Mountain Echo Newspapers on August 27-28, 2019.

Administrative Review (Appeal) Opportunities

Projects that are categorically excluded are not subject to pre-decisional administrative review or administrative appeal. Further, they are not subject to legal notice and comment under the pre-decisional administrative review process (36 CFR 218.23).

Implementation Date

It is anticipated that implementation for this project will begin immediately.

Contact

For additional information concerning this decision, contact: Shawn Wheelock, District Hydrologist, at shawn.wheelock@usda.gov or by phone at (530) 336-5521.

Signature of Deciding Official

3/12/2020

Christopher O'Brien — Date

Acting District Ranger

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Appendices

Appendix A – Integrated Design Features

The following Integrated Design Features (IDFs) are resource protection measures that are developed by specialists to reduce or eliminate any unwanted environmental effects. They are project specific and incorporated as part of the proposed action in addition to Best Management Practices (BMPs). IDF's ensure the project is consistent with Lassen LRMP standards and guidelines as well as other laws, regulations, and policies. These IDFs are also included as parameters that will be incorporated into treatments, contracts, or used to guide Forest Service personnel in conducting implementation.

Botany

Threatened, Endangered, Forest Service Sensitive and Special Interest Plant Species:

1. New occurrences of TES plant species discovered before or during ground-disturbing activities would be protected through flag-and-avoid methods.

2. All occurrences of giant checkerbloom (*Sidalcea gigantea)* would be flagged and avoided by ground disturbing activities and displayed as control areas on contract maps.

Invasive Plant Species:

1. All off-road equipment would be weed-free prior to entering the Forest. Staging of equipment would be done in weed-free areas.

2. Known invasive plant infestations would be identified, flagged where possible, and mapped for this project. Locations would be displayed on contract maps. Identified invasive plant sites within or adjacent to the project area containing isolated patches with small plant numbers would be treated (hand pulled or dug) by forest botany staff or designated project partners prior to project implementation and avoided. Any larger or non-pull able infestations would be avoided by harvesting equipment, or equipment used would be washed on site before leaving the infested area and entering un-infested areas to prevent spreading invasive plants across the project area.

3. New small infestations identified during project implementation would be evaluated and treated according to the species present and project constraints and avoided by project activities. If larger infestations are identified, they would be isolated and avoided by equipment, or equipment used would be washed after leaving the infested area and before entering an un-infested area.

4. Post-project monitoring for implementation and effectiveness of weed treatments

and control of new infestations would be conducted as soon as possible and for a period of two- years after completion of the project.

5. If approved project implementation calls for mulches or fill, they would be certified weed-free.

6. Seed mixes used for revegetation of disturbed sites would consist of locally adapted native plant materials to the extent practicable.

Cultural Resources

Cultural Resource integrated design features will conform to standard mitigations from Programmatic Agreement (PA) among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region – Amendment #1 (2018; PA). If these are determined to not be adequate for protection of historic properties, the Lassen will consult with the California Office of Historic Preservation under the provisions of the PA.

Standard Mitigation Class I: Avoidance

1. Heritage Program Manager (HPM) / District Heritage Program Specialist (DHPS) shall exclude historic properties from areas where activities associated with undertakings will occur, except where authorized below.

2. Proposed undertakings shall avoid historic properties. Avoidance means that no activities associated with undertakings that may affect historic properties, unless specifically identified in this PA, shall occur within historic property boundaries, including any defined buffer zones (see clause 1.1(a), below). Portions of undertakings may need to be modified, redesigned, or eliminated to properly avoid historic properties.

    a. Buffer zones may be established to ensure added protection where HPM/DHPS determine that they are necessary. The use of buffer zones in avoidance measures may be applicable where setting contributes to property eligibility under 36 CFR 60.4, or where setting may be an important attribute of some types of historic properties (e.g., historic buildings or structures with associated historic landscapes, or traditional cultural properties important to Indians), or where heavy equipment is used in proximity to historic properties.

b. The size of buffer zones must be determined by HPMs or qualified Heritage Program staff on case-by-case bases.

3. Activities within historic property boundaries will be prohibited with the exception of using developed Forest transportation systems when the HPM or qualified heritage professional recommends that such use is consistent with the terms and purposes of this agreement, where limited activities approved by the HPM or qualified heritage professional will not have an adverse effect on historic properties, or except as specified below in section 2.0.

4. All historic properties within areas of potential effect (APEs) shall be clearly delineated prior to implementing any associated activities that have the potential to affect historic properties.

    a. Historic property boundaries shall be delineated with coded flagging and/or other effective marking.

    b. Historic property location and boundary marking information shall be conveyed to appropriate Forest Service administrators or employees responsible for project implementation so that pertinent information can be incorporated into planning and implementation documents, contracts, and permits (e.g., clauses or stipulations in permits or contracts as needed).

5. When any changes in proposed activities are necessary to avoid historic properties (e.g., project modifications, redesign, or elimination; removing old or confusing project markings or engineering stakes within site boundaries; or revising maps or changing specifications), these changes shall be completed prior to initiating any project activities.

6. Monitoring by heritage program specialists may be used to enhance the effectiveness of protection measures. The results of any monitoring inspections shall be documented in cultural resources reports and the Infra database.

7. In the event that either cultural resources are discovered, or historic properties are inadvertently affected, during implementation of this undertaking, all work shall stop until the situation can be assessed by a qualified archaeologist and reported to the Heritage Program Manager or assessed by the Heritage Program Manager. The Forest will submit written notification describing the circumstances of the discovery to the Regional Heritage Program Leader and State Historic Preservation Officer within two working days (e.g., letter or email notification). Forests will provide written reports describing the status or resolution of the

discovery/inadvertent effect every six months until it is resolved (Section 7.10 Discoveries and Inadvertent Effects, (a) USFS 2018).

8. Should inadvertent effects to or unanticipated discoveries of human remains be made during this undertaking, the County Coroner (California Health and Safety Code 7050.5(b)) or Sheriff if ex officio Coroner (Nevada Revised Statutes 259) shall be notified immediately. If the remains are determined to be Native American or if Native American (Indian) cultural items pursuant to the Native American Graves Protection and Repatriation Act are uncovered, the provisions of the Native American Graves Protection and Repatriation Act and its regulations at 43 CFR 10 and ARPA at 43 CFR 7 shall be followed on federal lands. (Section 7.9 Human Remains, (a) USFS 2018).

Class II: On-Site Historic Property Protection Measures

1. HPM/DHPS may provide written approval for an undertaking's activities within or adjacent to the boundaries of historic properties based on professional judgment that such activities will not have an adverse effect on historic properties, or under carefully controlled conditions such as those specified below. All activities performed under Section 2.0 (Standard Protection Measures) must be documented in inventory or other Heritage Program Reports (HPMs), or other compliance reports prepared pursuant to this PA.

2. The following historic property protection measures may be approved for undertakings under the conditions detailed below:

    a. Linear sites (e.g., historic trails, roads, railroad grades, ditches) may be crossed or breached by equipment in areas where their features or characteristics clearly lack historic integrity (i.e., where those portions do not contribute to site eligibility or values).

    b. Crossings are not to be made at the points of origin, intersection, or terminus of linear site features.

    c. Crossings are to be made perpendicular to linear site features.

    d. The number of crossings is to be minimized by project and amongst multiple projects in the same general location.

    e. The remainder of the linear site is to be avoided, and traffic is to be clearly routed through designated crossings.

    f. Accumulation of sufficient snow over archaeological deposits or historic features to prevent surface and subsurface impacts. Undertaking activities

may be implemented over snow cover on historic properties under the following conditions:

g. The cover must have at least 12 inches depth of compacted snow or ice throughout the duration of undertaking activities on sites.

h. All concentrated work areas (e.g., landings, skid trails, turnarounds, and processing equipment sites) shall be located prior to snow accumulation and outside historic property boundaries.

i. Placement of foreign, non-archaeological material (e.g., padding or filter cloth) within transportation corridors (e.g., designated roads or trails, campground loops, boat ramps, etc.) over archaeological deposits or historic features to prevent surface and subsurface impacts caused by vehicles or equipment. Such foreign material may be utilized on historic properties under the following conditions:

    i. Engineering will design the foreign material depth to acceptable professional standards;

    ii. Engineering will design the foreign material use to assure that there would be no surface or subsurface impacts to archaeological deposits or historic features;

    iii. The foreign material must be easily distinguished from underlying archaeological deposits or historic features;

    iv. The remainder of the archaeological site or historic feature is to be avoided, and traffic is to be clearly routed across the foreign fill material;

    v. The foreign material must be removable should research or other heritage need require access to the archaeological deposit or historic feature at a later date; and

    vi. Indian tribe or other public concerns about the use of the foreign material will be addressed prior to use.

j. Placement of barriers within or adjacent to site boundaries to prevent access to or disturbance of deposits or historic features, or for protection of other sensitive resources on-site, when such barriers do not disturb subsurface deposits or lead to other effects to the site.

i. Non-intrusive barriers: wooden and other barriers anchored with rebar; rocks/boulders or other items placed on the surface; weed-free straw bales or straw bales anchored with rebar; or other nonintrusive barriers approved by HPMs or qualified Heritage Program staff.

ii. Fencing: "T"-post fencing; snow fencing; orange highway-type fencing; or other fencing approved by HPMs or qualified Heritage Program staff.

k. Installation or placement of erosion control devices, ditches, features or other treatments within site boundaries when such measures are reviewed by the HPM/DHPS and hydrologist or soil scientist, and HPM approves their use as unlikely to affect the integrity of a historic property.

3. The following activity-specific standard protection measures may be approved by HPM/DHPS under the conditions specified below:

i. Felling and removal of hazard, salvage, and other trees within historic properties under the following conditions:

ii. Trees may be limbed or topped to prevent soil gouging during felling;

iii. Felled trees may be removed using only the following techniques: hand bucking, including use of chain saws, and hand carrying, rubber-tired loader, crane/self- loader, helicopter, or other non-disturbing, HPM-approved methods;

iv. Equipment operators shall be briefed on the need to reduce ground disturbances (e.g., minimizing turns);

v. No skidding nor tracked equipment shall be allowed within historic property boundaries; and

b. Where monitoring is a condition of approval, its requirements or scheduling procedures should be included in the written approval.

c. For fire, and hazardous fuels and vegetation management projects, HPM/DHPS, in conjunction with fuels, vegetation management, or fire specialists as necessary, shall develop treatment measures for at risk historic properties (as defined in SHPO approved Region 5 modules and agreements) designed to eliminate or reduce potential adverse effects to the extent practicable by utilizing methods that minimize surface

disturbance, and/or by planning project activities in previously disturbed areas or areas lacking cultural features.

d. The following standard protection measures apply to fire, hazardous fuels, and vegetation management projects:

    i. Fire crews may monitor sites to provide protection as needed.

    ii. Fire lines or breaks may be constructed off sites to protect *at risk* historic properties.

    iii. Vegetation may be removed, and fire lines or breaks may be constructed within sites using hand tools, so long as ground disturbance is minimized, and features are avoided, as specified by HPMs or qualified Heritage Program staff during fire emergencies (see Stipulation 7.11).

    iv. Surface fuels (e.g., stumps or partially buried logs) on at risk historic properties may be covered with dirt, fire shelter fabric, foam or other wetting agents, or other protective materials to prevent fire from burning into subsurface components and to reduce the duration of heating underneath or near heavy fuels.

    v. Trees that may impact *at risk* historic properties should they fall on site features and smolder can be directionally felled away from properties prior to ignition or prevented from burning by wrapping in fire shelter fabric or treating with fire retardant or wetting agents.

    vi. Vegetation to be burned shall not be piled within the boundaries of historic properties unless locations (e.g., a previously disturbed area) have been specifically approved by HPMs or qualified Heritage Program staff.

    vii. Mechanically treated (crushed/cut) brush or downed woody material may be removed from historic properties by hand, through the use of off-site equipment, or by rubber-tired equipment approved by HPMs or qualified Heritage Program staff. Ground disturbance shall be minimized to the extent practicable during such removals.

    viii. Woody material may be chipped within the boundaries of historic properties so long as the staging of chipping equipment on-site

does not affect historic properties and staging areas are specifically approved by HPMs or qualified Heritage Program staff.

ix. HPMs shall approve the use of tracked equipment to remove brush or woody material from within specifically identified areas of site boundaries under prescribed measures designed to prevent or minimize effects. Vegetative or other protective padding may be used in conjunction with HPM authorization of certain equipment types within site boundaries.

e. HPMs or qualified Heritage Program staff shall determine whether fire, prescribed fire, or mechanical equipment treatments within site boundaries shall be monitored, and how such monitoring shall occur.

f. Use of any standard protection measures on historic properties for fire, hazardous fuels, and vegetation experimental mechanical treatments shall be documented in heritage program reports, detailing equipment type, extraction techniques, conditions of use, environmental conditions, project results, effectiveness of protection measures, need for changes, and recommendations for future use.

4. When any changes in proposed activities are necessary to avoid historic properties (e.g., project modifications, redesign, or elimination; removing old or confusing project markings or engineering stakes within site boundaries; or revising maps or changing specifications), these changes shall be completed prior to initiating any project activities. PA Appendix E section 1.4.

5. If cultural resources are identified during project implementation (unanticipated discovery) all work will cease immediately in that area until the situation is reviewed and an assessment and mitigation plan instituted to insure protection of the site. PA section 7.10.

Fire and Fuels/Air Quality

1. Minimize ground disturbance associated with fireline construction and where feasible, use existing firelines (i.e. roads, skid trails and natural barriers).

2. Burning shall be in accordance with Shasta County Air Resources Board regulations. Prescribed burns shall be conducted when conditions for smoke dispersal are favorable, especially away from homes, roads, and sensitive areas.

Hydrology

Riparian Reserves (RR): Aquatic Conservation Strategy objectives. (NWFP-Standards and Guidelines C-32).

All actions in riparian reserve areas will conform to the requirements of:

a. Water Quality Management for Forest System Lands in California, Best Management Practices (2011)
b. Lassen National Forest Wet Weather Operations Guide
c. Lassen National Forest Wet Weather Haul Agreement

When operations occur within riparian reserves, the following integrated design features will be implemented:

1. Soils must be dry at a depth of 10 inches before equipment could be operated on them.
2. Conifers will be harvested with a feller-buncher. Track widths would be 24 inches or greater.
3. To the extent practicable, logging equipment will utilize a straight-in and straight-out pattern, thereby minimizing the number of turns and associated disturbance.
4. Where extant, conifers necessary for stream bank stability will be retained.
5. Ground-based equipment will be prohibited in areas with slopes greater than 20 percent.
6. Crossings:
    a. When dry, seasonal channels and hydrologic depressions may be crossed with equipment at stable crossing points.
    b. Vernal pools, wetlands (including wet meadows), springs, and lakes may not be crossed.
    c. Crossings will be designated by agreement on the ground prior to implementation.
    d. Skid trails and crossings will be perpendicular to the hydrologic feature.
    e. Skid trails and crossings will be chosen to minimize the number of channel crossings and damage.
    f. When items (d) and (e) cannot both be met, (e) takes precedence.
    g. When loose soil that is likely to be displaced is present, erosion control measures, such as wattles, silt fences, or a functional equivalent will be deployed down channel from the crossing. When the need has passed, they and any captured materials would be removed.
    h. Crossings will be restored when no longer needed for project operations.

7. Groundcover (including pre-existing rocks) will be kept at approximately 90 percent of existing. Excess project-generated debris (rocks, slash, etc.) will be removed unless Forest Service specialists consider it desirable for landscape stability and/or habitat enhancement.
8. Pre-existing logging infrastructure on the landscape (i.e. temporary roads, equipment staging areas, and the outer 50 feet of landings) may be used by agreement with Forest Service personnel. This will only take place when sedimentation is mitigated by erosion prevention measures. In the case of landings, only the outer 50 feet could be used.
9. No new landings or temporary roads will be constructed.
10. Slash will be spread on skid trails when they are being used. When no longer needed, the skid trails will be removed from the landscape and rehabilitated, with ground cover at approximately 90 percent. Rocks will only count towards this if they were in place before project activities began.
11. Dust palliatives will not be used within 25 feet of hydrologic features and/or riparian vegetation.
12. Riparian species (alder, aspen, willows, etc.) will not be cut or removed, unless necessary for operability.
13. Large, downed wood in stream channels and hydrologic depressions will remain in place. The sole exception to this is in the vicinity of the berm, debris deemed to be excessively inhibiting flow will be removed.
14. In areas proposed for piling and pile burning:
    a. Fuels will be piled as far away from hydrologic features as practicable.
    b. No pile ignitions will occur within the innermost 50 feet.
    c. Piles will be burned in the fall or winter to reduce the potential for soil damage.
15. Dozer-piling would be minimized. When practicable, other piling methods will be utilized.
16. When prescribed fire operations occur nearby, the fire could be backed in. No ignitions will take place.
17. No scarification or ripping of soils will occur.

Silviculture:

1. Cut stumps of live conifers (except Douglas fir) with a 14-inch stump diameter and greater would be treated with an EPA-approved borate compound which is

registered in California for the prevention of annosus root disease. No EPA-approved borate would be applied within 25 feet of known Threatened, Sensitive and Special Interest Plants or within 25 feet of live streams and meadow/wetlands.

Soils

1. Soil quality standards and appropriate best management practices (BMP) that protect forest soils will be implemented for the entire project. Best management practices and soil standards are described in Water Quality Management for Forest System Lands in California, Best Management Practices (2011), Lassen Forest Plan (1992, 1993), and the Northwest Forest Plan (1994)

2. In treatment units outside of riparian reserve areas, soil moisture conditions would be evaluated using Forest-established visual indicators before equipment operation proceeds. Lassen National Forest wet weather operations and wet weather haul agreements would be followed to protect the soil and transportation resources.

3. Areal extent of detrimental soil disturbance would not exceed 15 percent of the area dedicated to growing vegetation. Following implementation, the mechanical treatment units would be evaluated by a qualified specialist to determine if detrimentally compacted ground exceeds the forest plan standard of 15 percent areal extent. If restoration is needed to achieve compliance, an appropriate subsoiler, ripper or other implement would be used to fracture the soil in place leaving it loose and friable.

4. In mechanical treatment units, landings within treated areas no longer needed for long-term management would be evaluated by a qualified specialist to determine whether remediation is needed to restore productivity and hydrologic function. If so, appropriate remediation would be implemented.

5. Machine piling operations would remove only enough material to accomplish project objectives and would minimize the amount of soil being pushed into burn piles. Duff and litter layers would remain as intact as possible, and the turning of equipment would be minimized.

6. To the extent possible, existing landings and skid trails would be used.

7. Where available, logs greater than 20" diameter will be left in place, at least 5 per acre.